

REMARKS

Claims 5 - 10, 12 - 16, 23, 24, and 27 - 34 are allowed.

Claims 38 - 41 and 50 - 53 are objected to as being dependent upon a rejected base claim, but are indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 38 has been rewritten in independent form, to include the limitations of Claims 35 and 36, from which Claim 38 previously depended. Claim 39 depends from Claim 38. Claim 40 has been rewritten in independent form, to include the limitations of Claim 35, from which Claim 40 previously depended. Claim 41 depends from Claim 40.

Claims 42 - 43 and 45, which previously depended from Claim 35 have been amended to be multiply dependent from independent Claims 38 and 40. Claim 46 depends from Claim 45. Because Claims 42 - 46 are now multiply dependent from Claims 38 and 40, and Claims 38 and 40 have been indicated to be allowable, applicant contends that Claims 42 - 46 are also allowable.

Applicant agrees with the Examiner's assertion (on page 4 of the current Office Action) that the subject matter of Claims 42 - 44 is inconsistent with the language of Claim 35 as it was last amended to include the phrase "consisting essentially of". In order to remove any ambiguity, amended Claims 38 and 40 (from which Claims 42 - 44 now depend) recite that the at least one additional etch step is performed using a plasma generated from a source gas comprising SF₆ and Ar. Claims 38 and 40 were indicated to be allowable in the Office Action mailed December 4, 2002, at the time that Claims 38 and 40 depended from Claim 35, and Claim 35 included the "comprising" claim language.

Claim 50 has been rewritten in independent form, to include the limitations of Claims 47 and 48, from which Claim 50 previously depended. Claims 51 - 53 depend from Claim 50.

In light of the amendments to Claims 38, 40, and 50, applicant respectfully requests withdrawal of the objections to Claims 38 - 41 and 50 - 53.

Claim Rejections Under 35 USC § 102

Claims 47 - 49 are rejected under 35 USC § 102(a) as being anticipated by U.S. Patent No. 5,891,807, to Muller et al.

In the interest of obtaining an expedited allowance, Claims 47 - 49 have been cancelled without prejudice, as set forth above. However, applicant continues to maintain the arguments previously made that Claims 47 - 49 are not anticipated by the Muller et al. reference.

In light of the cancellation of Claims 47 - 49, the rejection of Claims 47 - 49 under 35 USC § 102(a), over Muller et al. has become moot.

Claim Rejections Under 35 USC § 103

Claims 35 - 37 and 42 - 46 are rejected under 35 USC § 103(a) as being unpatentable over Muller et al., in view of U.S. Patent No. 5,182,234, to Meyer.

As discussed above, Claims 42 - 43, and 45 have been amended to be multiply dependent from independent Claims 38 and 40. Claims 38 and 40 have been indicated to be allowable, therefore, applicant contends Claims 42 - 43, and 45 - 46 which depend from these claims are also allowable.

Claim 35 has been amended so that it is clear that the etching plasma consists essentially of chemically reactive species generated from SF₆ which are used in combination with species generated from an inert gas. The Muller et al. reference describes a plasma gas composition which includes HBr, NF₃ and either a premixed He/O₂ or pure O₂. Col. 3, lines 55 - 56. In the Examples 1 and 2, there is both HBr and O₂ present during the First Stage etch and the Second Stage etch. The Meyer reference adds O₂ in the second anisotropic etch step, to form an oxide on trench sidewalls. ~~Neither the HBr and O₂ or the O₂ alone is present in applicant's second step etchant composition as~~ claimed in amended Claim 35. This is important, since the profile obtained during the second etch step is affected by whether an oxide passivation layer is being formed. There is no suggestion in either the Muller et al. reference or the Meyer reference of a Second Stage (or second step) etch

which utilizes a chemically reactive etchant composition which contains no passivating agent. Support for applicant's amendment to Claim 35 is in applicant's Specification as originally filed at Page 3, lines 19 - 26, and at Page 4, lines 7 and 8, by way of example.

Claim 44 has been amended to depend from Claim 35 only and is considered to be patentable based on the allowability of amended Claim 35.


In view of the distinctions provided above and the amendments to Claims 35, and 42 - 45, applicant respectfully requests withdrawal of the rejection of Claims 35 - 37 and 42 - 46 under 35 USC § 103(a), over Muller et al., in view of Meyer.

The amendments made herein are for the purpose of placing the claims in better condition for allowance or appeal. If the Examiner would like to make any suggestions regarding amendment of the claims, this would be appreciated by applicant's attorney.

Applicant asserts that the claims as amended are in condition for allowance, and the Examiner is respectfully requested to enter the present claim amendments and to pass the application to allowance.

The Examiner is invited to contact applicant's attorney with any questions or suggestions, at the telephone number provided below.

Respectfully Submitted,


Shirley L. Church
Registration No. 31,858
Attorney for Applicant
(650) 473-9700

Correspondence Address:
Patent Counsel
Applied Materials, Inc.
P.O. Box 450 A
Santa Clara, CA 95052